

## 4. 2035 METRO VISION REGIONAL TRANSPORTATION PLAN ELEMENTS

The 2035 MVRTP regional transportation system consists of a multimodal network of integrated and interconnected regional transportation facilities. Programs, policies and services will guide their development, maintenance and operation. Integration refers to travel modes acting in unison (e.g., a roadway with bike lanes and sidewalks). Interconnection refers to the transfers between modes. Efficient mode transfers are essential if travel by alternative modes is to be encouraged. Plan elements will not function in isolation. For example, buses travel on roadways and automobile drivers may transfer to transit at park-n-Ride lots.

Elements identified in the 2035 MVRTP regional transportation system will influence and respond to existing and future growth challenges. The relative distribution of new households and employment (2010-2035) are displayed in Figures 12 and 13, respectively. The estimated distribution reflects DRCOG forecasts prepared for conformity modeling. The forecasts considered local development plans, anticipated transportation facilities, and environmental factors such as aquifer discharge and recharge areas, airport influence areas, lakes and streams, private farmland, open space, and sand and gravel deposits. New households will be distributed throughout the region. They will form in new subdivisions on the edge of the currently developed area as well as at redevelopment sites and urban centers within the City and County of Denver, the freestanding communities, and several inner-ring suburbs. New employment sites will be concentrated in several urban centers and corridors oriented along freeways and rapid transit lines. This reflects a continuation of the historical trend of employers locating near key transit and highway corridors.

The complete transportation system includes local, state, and regional facilities that are provided by both public and private entities. The estimated cost to implement, operate, and maintain the complete transportation system from 2012 to 2035 is \$133 billion. However, only \$93 billion is currently expected to be available through 2035. Therefore, the Fiscally Constrained 2035 Regional Transportation Plan component has been developed and is presented in Chapter 5.

Numerous meetings with DRCOG committees, local government staff, CDOT, RTD, and the public were combined with technical analyses to develop the regional transportation system elements. In addition, in accordance with SAFETEA-LU requirements, DRCOG administers a congestion management process (CMP) as part of its congestion mitigation program of

activities, which was utilized as part of the technical analyses. The CMP's three themes to mitigate congestion are:

- Help people adapt to congestion;
- Help people avoid congestion; and
- Alleviate congestion with construction and operational projects.

The CMP includes the following elements to enable the effective management and operation of the transportation system:

- CMP maintains a database containing traffic volumes, capacity information, and congestion measures for the regional roadway system;
- CMP is used to identify congested locations (see Figure 6);
- CMP provides a basis for defining a congestion-related purpose and need for corridor visions (to be further evaluated through the NEPA process); and
- CMP has established a toolkit of construction, demand management, real-time information, and operational strategies for addressing congestion, to be implemented by state, regional, and local agencies.

The transportation system is closely related to the growth and development elements of Metro Vision. These relationships are presented in regional sub-area maps described in Section A of this chapter. The remaining sections describe the specific 2035 Metro Vision transportation mode and management elements. Also presented are the most applicable Metro Vision policy statements and action strategies for each element, which should be followed in the design and implementation of transportation improvements by local governments, CDOT, RTD, and others.

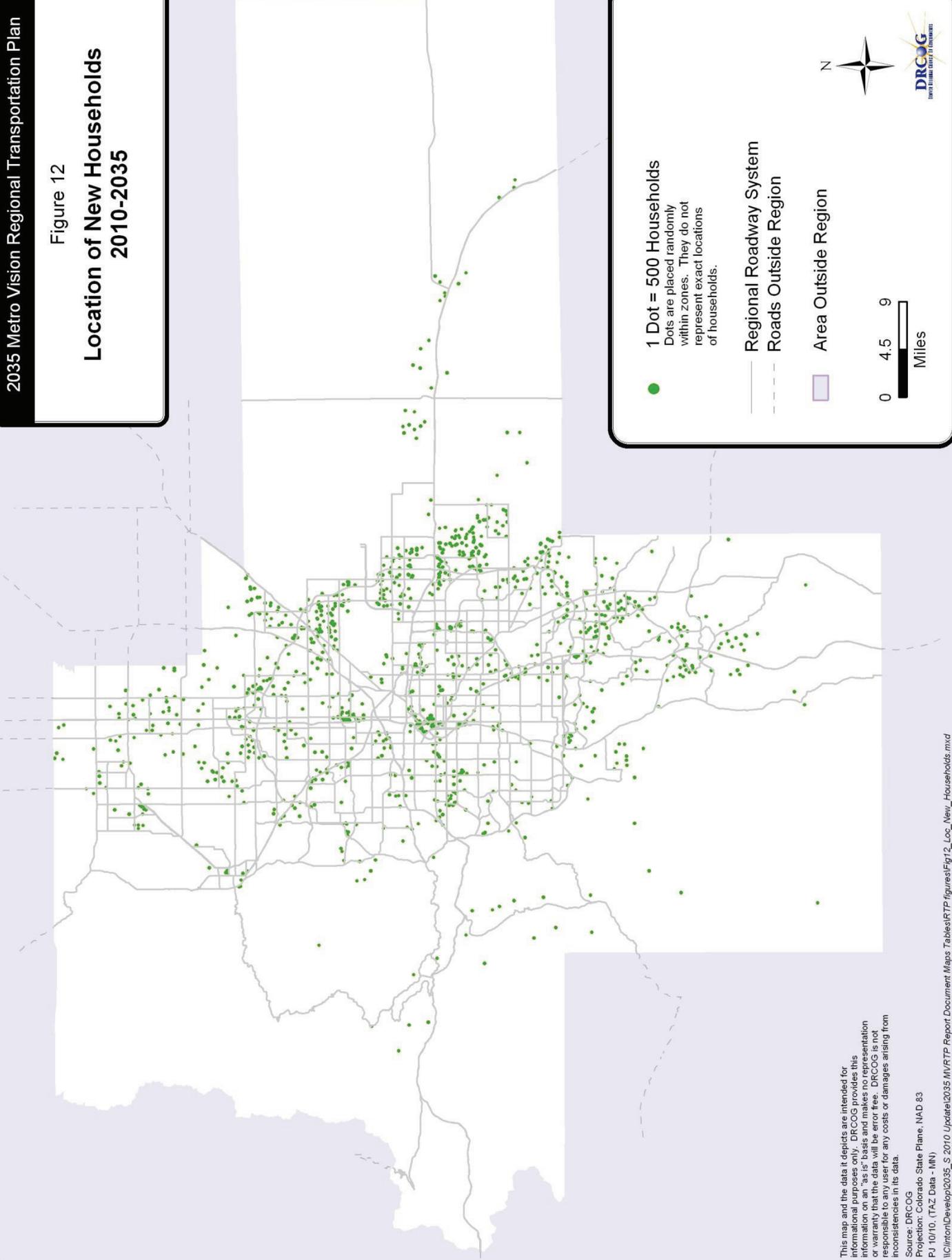
## A. Integration of Metro Vision Elements and Corridor Visions

The Metro Vision growth, development, and environmental quality elements are closely integrated with key multimodal corridors of the transportation system. Exhibits 1 to 9 of Appendix 1 display the 2035 regional transportation system elements along with urban centers, freestanding communities, the urban growth boundary/area, and open space. The nine overlapping sub-area maps cover the central urbanized portion of the Denver region where the majority of interactions occur. They enable a more detailed visual examination of how spatial elements of the *Metro Vision 2035 Plan* interact. The precise locations of rapid transit lines and the number of lanes on regional roadways are estimated at this time. Ongoing and future environmental studies will determine final alignments, transit vehicle technology, and the number and types of lanes.

Multimodal corridor visions for freeways, major regional arterial, and other state highways are presented in Appendix 1. The corridor visions were prepared in conjunction with the development of the Metro Vision regional transportation system, and are consistent with the discussions and descriptions of the remaining sections of this chapter. Some lengthy corridors like I-70 and I-25 have been subdivided to better reflect geographic context, so a total of 35 individual corridors are presented. Descriptive sheets for each corridor present a transportation vision statement, identify corridor goals/objectives, present a corridor context, discuss select environmental resources, and depict the strategies/projects that comprise the unconstrained corridor vision necessary to influence and respond to future growth and development. Four more generic visions for other state highways in the region are also presented. The corridor visions will help guide the definition, prioritization, and design attributes of future transportation projects.

Figure 12

# Location of New Households 2010-2035



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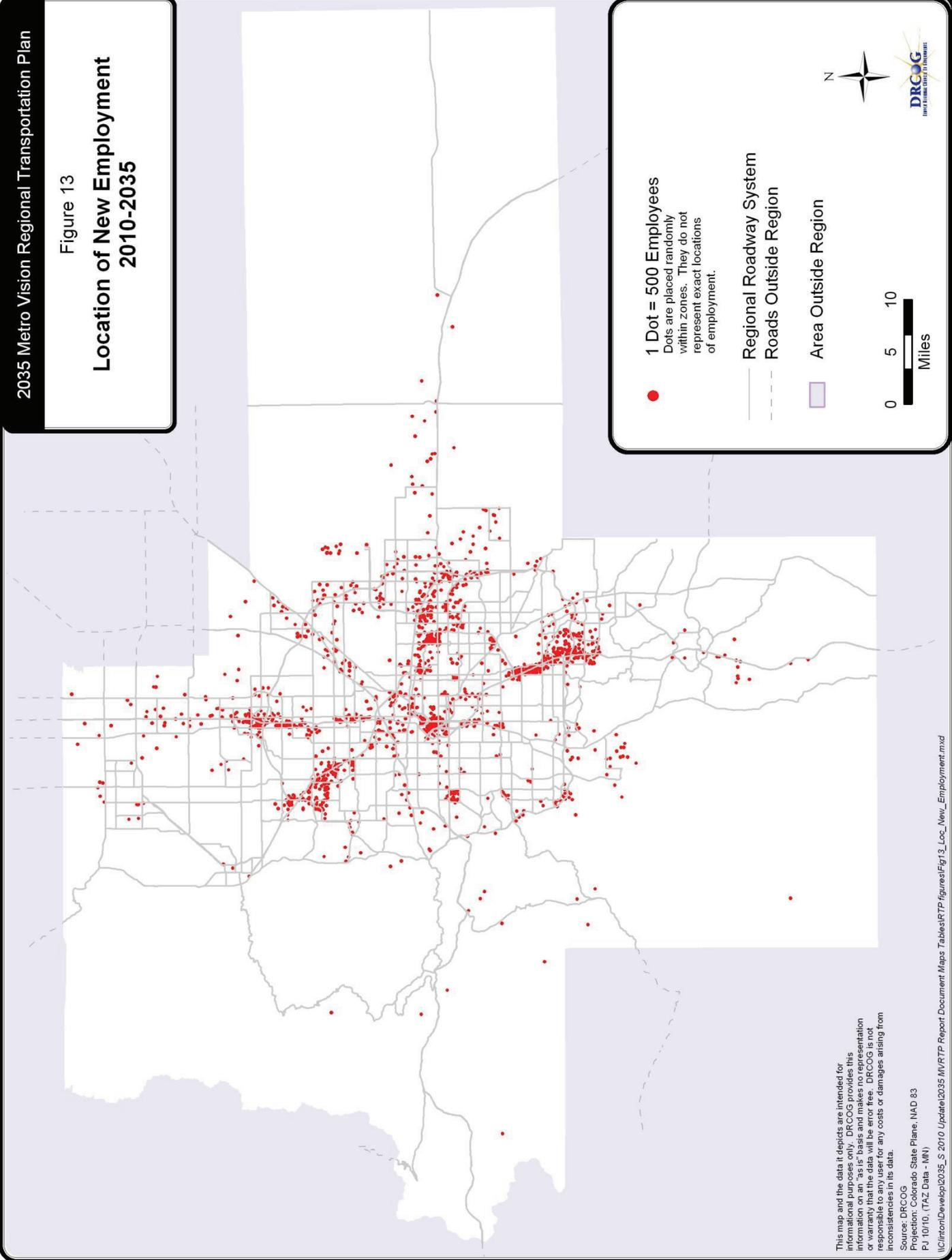
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Projection: Colorado State Plane, NAD 83  
PJ 10/10, (TAZ Data - MN)

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Figure 13

# Location of New Employment 2010-2035



**1 Dot = 500 Employees**  
Dots are placed randomly within zones. They do not represent exact locations of employment.

— Regional Roadway System  
- - - Roads Outside Region

□ Area Outside Region

0 5 10  
Miles



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Source: DRCOG  
Projection: Colorado State Plane, NAD 83  
PJ 10/10, (TAZ Data - MN)

## B. Regional Roadway System

The majority of person travel and local freight movements in the Denver region occur via motor vehicles on roads and highways. Other important roadway users include bicyclists, pedestrians, and bus passengers. The 2035 regional roadway system will have a great impact on the shape of urban development in the Denver region. Segments of the system will also serve as external connectors to the rest of the state. Metro Vision transportation policies considered when defining the sustainable regional roadway system are listed below along with applicable action strategies.

### Roadways: Metro Vision Transportation Policies and Action Strategies

**Policy #3. Roadways.** Provide a sustainable roadway system that enables safe and efficient travel by automobiles, trucks, buses, and bicycles.

- Maintain and enhance a regional roadway system comprised of existing, expanded, or new freeways, major regional arterials and principal arterials that provide regional and statewide connectivity for the movement of people and goods;
- Expand the capacity of existing regional roadways in the most critically congested corridors and at key traffic bottlenecks, after considering demand management strategies and operational efficiencies;
- Implement multimodal facilities and system management improvements when constructing new or retrofitting existing major travel corridors;
- Support local streets and roadways that provide vehicular, local transit, bicycle, and pedestrian access to and from residential and non-residential areas throughout the region;
- Prioritize roadway capacity funds for projects that address gaps in the existing roadway system and eliminate bottlenecks consistent with findings of the congestion management planning process;
- Develop opportunities for implementing congestion pricing and other tolling techniques on existing freeways, and implement a tolling component (price-management) on new freeway lane-addition projects, where feasible, with all impacted communities included in the tolling decision and surplus revenue directed to multimodal investment or system preservation;
- Support legislation that would implement VMT-based fees, pay-as-you-drive insurance, and other pricing strategies that more directly and immediately reflect the cost of vehicle travel to the user.

**Policy #5: Rights-of-way Preservation.** Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

**Policy #6. Denver Central Business District.** Improve and maintain efficient transportation access by all modes to downtown Denver.

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Improve transportation linkages to major destinations and attractions outside the region;
- Facilitate the movement of goods throughout the region by reducing obstructions such as congestion, bottlenecks, and disconnections between facilities, while providing sufficient opportunities for intermodal freight connection;
- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing.
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.

**Policy #12. Land Use Integration.** Implement transportation system components that support Metro Vision’s urban growth boundary/area, urban centers, open space, and associated concepts.

- Encourage transportation projects that support the growth of housing and employment within designated urban centers.
- Provide roadway capacity increases and new freeway interchanges primarily in areas within the urban growth boundary/area, except for major statewide connections.
- Promote multimodal interaction between streets and adjacent development in the design of new developments, and through the retrofitting of existing streets.
- Encourage open space preservation in conjunction with new major transportation facilities.
- Encourage transportation projects that directly serve the designated freestanding communities.
- Provide a transportation system that supports the region’s economic vitality, competitiveness, and sustainability.

**Policy # 14. Environmental Quality.** Develop and maintain a sustainable transportation system that protects and enhances air quality, energy efficiency, and the overall environment.

- Provide a wide variety of transportation facilities, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities, that are more energy efficient and less polluting in aggregate than single-occupant vehicles.
- Prioritize transportation system improvements that minimize transportation-related fuel consumption and air pollutant and greenhouse gas emissions.
- Promote improvements in roadway construction and street maintenance activities to reduce dust and particulates; decrease associated energy consumption and pollutant emissions; and minimize and mitigate polluted water running off roadways.
- Explore the potential of select speed limit reductions.

## Roadway System Background

The Metro Vision 2035 regional roadway system was built from that defined for the 2030 MVRTTP and was based on the following steps and considerations:

- Congestion levels and travel demand;
- Lane-balancing;
- Role as external statewide connectors;
- Urban growth boundary/area;
- Location of urban centers, and transit-oriented and other new developments;
- Metro Vision land development concepts;
- Development pattern area traversed;
- Service to parks/recreation areas;
- Review of local transportation and comprehensive plans and corridor studies;
- Consultation with and participation of local governments;
- Consultation with CDOT; and
- Public input.

Many of the specific attributes of the 2035 regional roadway system are not known at this time. Exact alignments for roadways and design elements, such as the number of lanes, will be determined through future studies. Alignments and lanes depicted on the system maps are best estimates at this time.

This section presents the physical makeup of the regional roadway system. Other elements that complement the system are presented in following sections. Such elements include system preservation, safety, management and operations, bus service, pedestrian, bicycle, and freight facilities. The relationship of the regional roadway system with these other transportation elements, and with the growth and development elements, is displayed in the exhibits in Appendix 1.

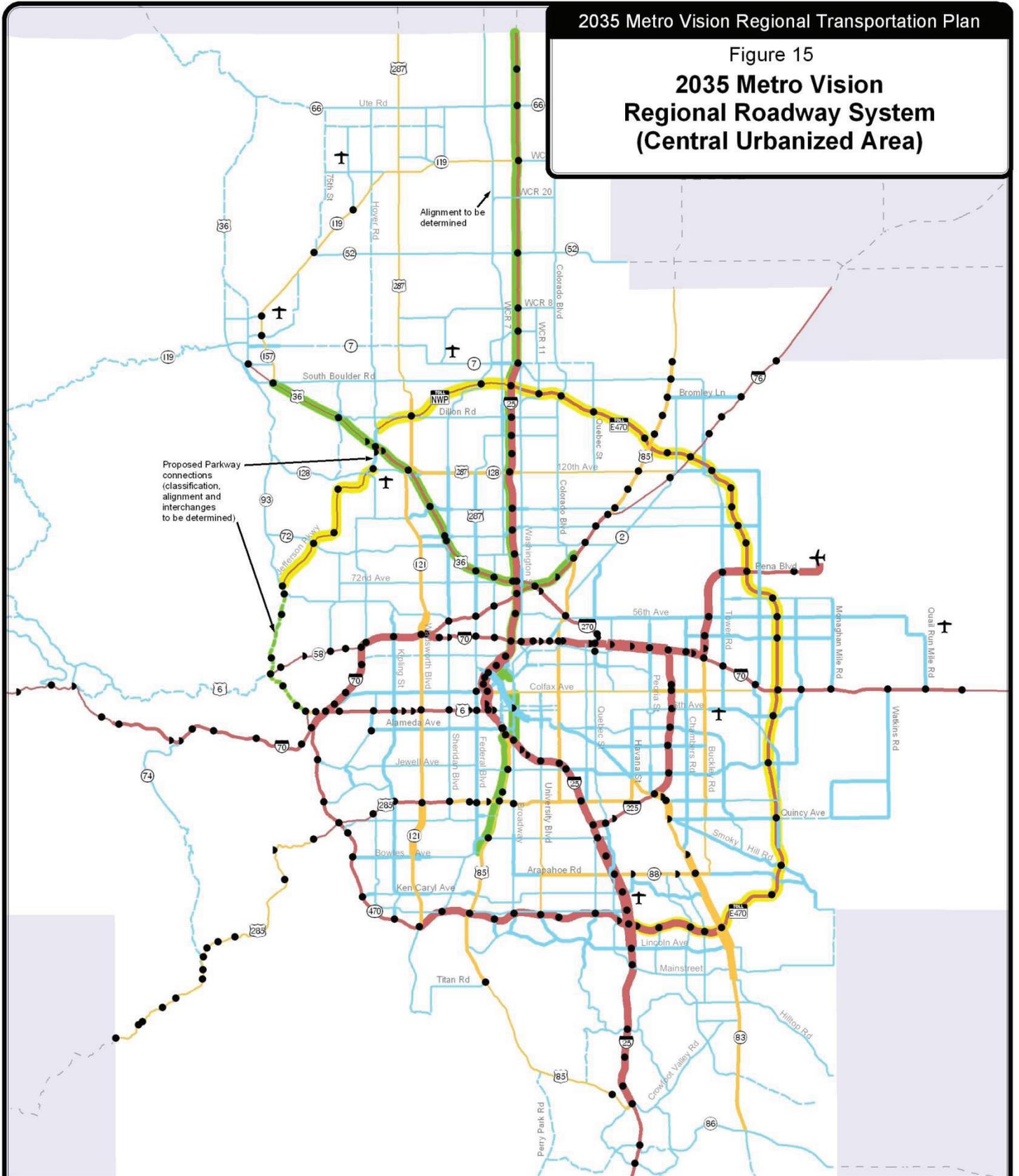
### **2035 Regional Roadway System**

The Metro Vision regional roadway system depicted in Figure 14 and Figure 15 reflects a base existing network, new roadways and interchanges, widened roadways, and improvements to existing interchanges throughout the region. This system is very important as it accounts for over 75 percent of all mileage driven in the region.

The number of system lane-miles increases from 6,900 in 2010 to about 9,000 in 2035. Lane-miles represent the number of through lanes multiplied by the roadway length. For example, a four-lane road that is three miles long equals 12 lane-miles. Parking lanes and turning lanes are not included.



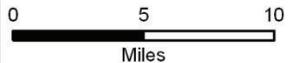
Figure 15  
**2035 Metro Vision  
 Regional Roadway System  
 (Central Urbanized Area)**



Proposed Parkway connections (classification, alignment and interchanges to be determined)

Alignment to be determined

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- 10 8 6 4-5 Freeway
- 10 8 6 4-5 Major Regional Arterial
- 8 6 4-5 2-3 Principal Arterial
- Managed HOV or HOT lanes
- Tollway

Note: Number of lanes for key corridors is estimated and subject to revision through future environmental studies. New interchanges on state highways subject to CDOT approval process.

- Full Interchange
- ▴ Partial Interchange
- Regional Roadway System
- - - Roads Outside Region
- Area Outside Region



The 2035 regional system roadways are classified as one of three facility types:

- *Freeways* - divided highways with access restricted to grade-separated interchanges. Some may be tolled fully (tollways, such as E-470). Others may be partially tolled and include specific managed Bus/HOV or HOT lanes as part of the facility. About 36 percent of all vehicle miles traveled in the region are on the freeway system.
- *Major regional arterials* - divided and undivided roadways that provide for high traffic volumes by minimizing left turns, side access, and cross-streets. They permit at-grade access and crossings, but some interactions with other major facilities might be grade-separated. They form the backbone of the regional roadway system along with freeways.
- *Principal arterials* - major streets primarily serving regional through-traffic, with at-grade intersections and side access permitted but regulated. Several principal arterials in older established cities within the UGB/A serve as multimodal streets with a high amount of pedestrian, transit, and commercial activity.

Interchanges are also part of the roadway system and include the following types:

- Freeway-to-freeway interchanges (e.g., I-70 at I-25 “Mousetrap”);
- Arterial-at-freeway interchanges (e.g., Alameda Avenue at I-225); and
- Grade-separated arterial interchanges that replace at-grade intersections (e.g., Evans Avenue at US-85).

Roadway capacity improvements of regional significance are an integral part of the 2035 regional roadway system. Such improvements include new roads and interchanges, widened roads, and new movements at interchanges. Roadways provide the conduit for regional and interregional automobile travel, local and regional bus travel, and freight movement. Without improvements, severe congestion will be experienced on many freeways and arterials for more than three hours per day (see Figure 6).

The 2035 Metro Vision regional roadway system contains the following facilities (noting the additional amount that would be completed after 2010):

- Freeways/tollways – 2,370 lane-miles (440 additional)
- Major regional arterials – 1,240 lane-miles (200 additional)
- Principal arterials – 5,410 lane-miles (1,450 additional)
- Bus/HOV/HOT lanes – 71 centerline miles (48 new)

- Freeway interchanges – 241 (21 new and one removed)
- Grade-separated arterial interchanges – 56 (32 new)

The Metro Vision regional roadway system envisions that many of the freeway corridors in the region will either be widened or have significant geometric and/or interchange improvements made by 2035. Several will also have rapid transit lines added within or parallel to the freeway right-of-way to make them true multimodal corridors. Many arterials will be widened, primarily in suburban areas. New arterials will also be added to serve growing parts of the region within the UGB/A. The specific improvements for some corridors will not be known until future studies are completed. For example, the I-70 corridor in the mountains is undergoing a thorough environmental study at the present time. Project elements will not be known until a preferred alternative is identified by the study process.

Railroad grade separations are not depicted in the regional roadway system maps. The elimination of at-grade railroad crossings is a critical issue in many communities. Many crossings cause significant delays and may pose safety hazards.

Currently E-470 and the Northwest Parkway are the only entirely tolled highways in the region. The initial phase of Jefferson Parkway is planned to be completed by 2015. Existing state statutes permit the tolling of new travel lanes that are added to existing freeways. Tolling of existing free lanes on state highways may be implemented, but only if the Colorado High Performance Transportation Enterprise obtains approval from all local governments the toll section passes through. Tolls can also be used for new “managed lanes”. For example, a travel lane may be added to a freeway that is free for buses and carpools, but collects tolls from single-occupant vehicle drivers. The amount of the toll can vary by time of day, depending on the level of congestion. Managed lanes are currently operated on I-25 north of downtown Denver to US-36 and are planned for US-36 to Boulder, I-25 to Larimer County and a short segment of I-76 (see Figure 15). Other locations for toll facilities have not yet been determined. Recommendations will be made after sufficient evaluation is conducted or environmental studies are completed.

While local streets are not depicted as part of the regional roadway system, they are important for providing access to and through local developments and neighborhoods. The costs to build and maintain local streets, including collectors and minor arterials, are included in the 2035 MVRTP. Similarly, roads operated by federal and state land agencies are not part of the

regional road systems, but they provide access to, within, and through the region’s recreational playgrounds. Their costs are likewise included in the 2035 MVRTP.

## C. Metro Vision Rapid Transit System

Light rail transit (LRT) is a viable and popular mode of travel for people in the Denver region, as demonstrated by the successful operations of the Southeast, Southwest, Central, and Central Platte Valley corridors. Existing lines and proposed additions to the rapid transit system will greatly encourage the types of future development patterns supported by Metro Vision. The Metro Vision rapid transit system (see Figure 16) includes light rail, commuter rail, and bus/high-occupancy vehicle (HOV) lanes with some also functioning as high-occupancy/toll (HOT) lanes. State intercity corridors extend from the regional rapid transit system to provide connections to destinations throughout the state.

Many Metro Vision policies for sustainable transportation are addressed by the proposed rapid transit system. The policies are listed below along with applicable action strategies:

### Rapid Transit: Metro Vision Transportation Policies and Action Strategies

**Policy #2. Transit.** Provide increased transit service and facilities that can accommodate an increasing share of daily travel, encourage transit-oriented development, and provide mobility options.

- Develop an expanded metropolitan rapid transit system comprised of rail and bus/BRT/HOV/HOT facilities that provide regional connectivity for passengers traveling throughout the region and to and from other regions.
- Provide a fixed-route bus service system that includes high-frequency bus corridors, regional bus service, feeder routes to rapid transit lines, and other local route service.
- Provide demand-responsive bus or van service in appropriate circumstances, such as for elderly and disabled persons, travelers in less densely developed or smaller market areas, or feeder service to rapid transit lines.
- Encourage and support pricing structures that keep transit service affordable.

**Policy #6. Denver Central Business District.** Improve and maintain efficient transportation access by all modes to downtown Denver.

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Improve transportation linkages to major destinations and attractions outside the region;
- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing.
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.
- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities.

- Consider opportunities for the development of an intercity commuter rail or bus system along the Front Range, and also incorporate, within the region, elements of a statewide intercity rail system.
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.

**Policy #12. Land Use Integration.** Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

- Encourage transportation projects that support the growth of housing and employment within designated urban centers.
- Encourage transportation projects that directly serve the designated freestanding communities.
- Encourage bus, rapid transit, bicycle, pedestrian and other transportation facilities and amenities that enhance transit-oriented developments (TOD).
- Provide a transportation system that supports the region's economic vitality, competitiveness, and sustainability.

**Policy #13. Transportation for the Disadvantaged.** Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

- Ensure that minority, low-income, elderly, and disabled households receive a proportionate share of accessibility benefits, travel mode choices, and services from future transportation system improvements and are not disproportionately affected by negative impacts associated with those improvements.

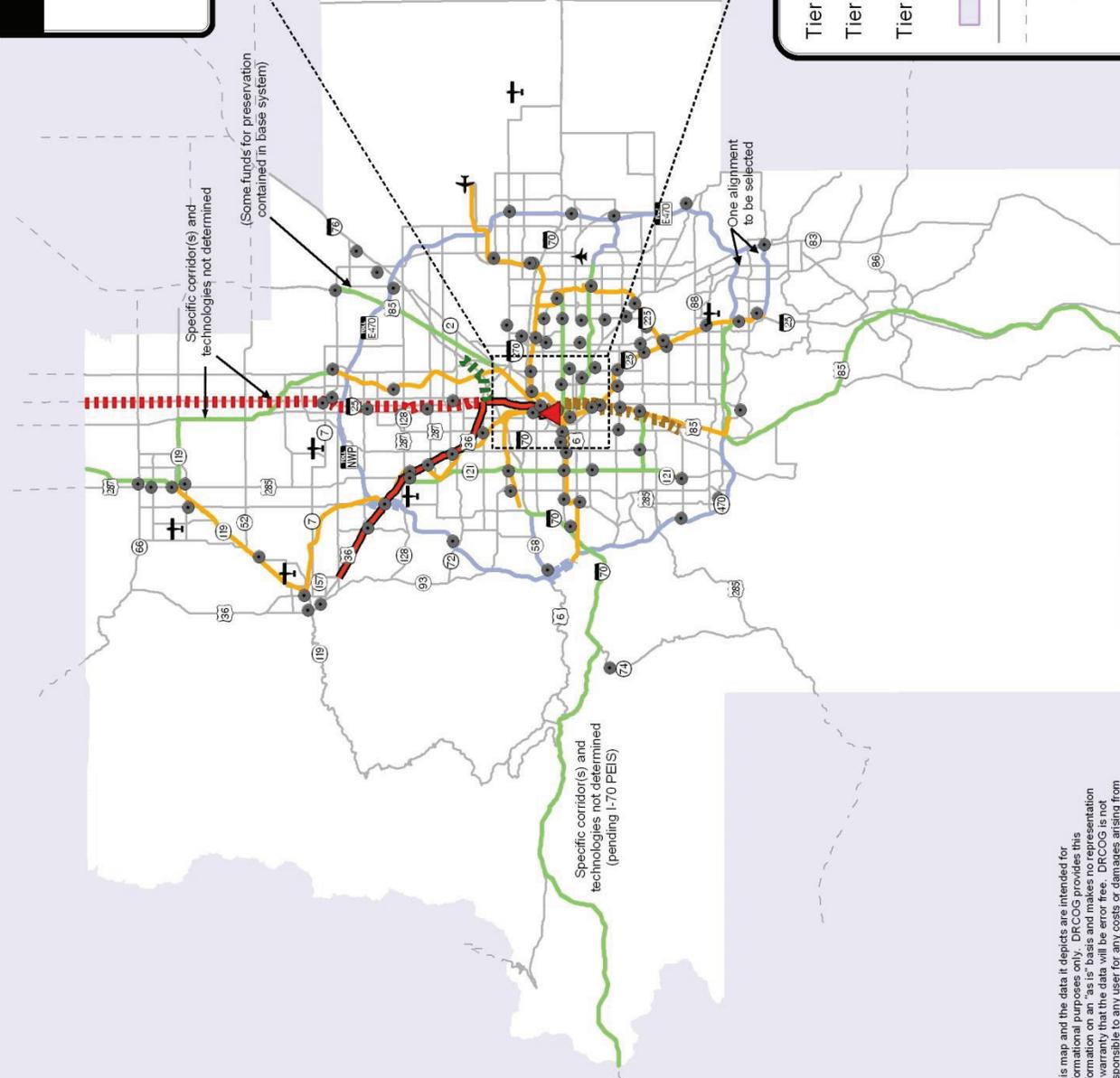
**Policy # 14. Environmental Quality.** Develop and maintain a sustainable transportation system that protects and enhances air quality, energy efficiency and the overall environment.

- Provide a wide variety of transportation facilities, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities, that are more energy efficient and less polluting in aggregate than single-occupant vehicles.
- Prioritize transportation system improvements that minimize transportation-related fuel consumption and air pollutant and greenhouse gas emissions.

Two important overall Metro Vision goals are directly related to rapid transit:

- Reduce the percent of trips to work by SOV to 65 percent by 2035, and
- Reduce the regional per capita VMT by 10 percent by 2035.

Figure 16  
**2035 Metro Vision  
 Rapid Transit System**



Specific corridor(s) and technologies not determined

(Some funds for preservation contained in base system)

Specific corridor(s) and technologies not determined (pending I-70 PEIS)

One alignment to be selected

Tier 1 - Base Rapid Transit System	BUS/HOV	HOT
Tier 2 - Potential Regional and State Intercity Corridors		
Tier 3 - Conceptual Preservation Corridors		
Area Outside Region		
Regional Roadway System		
Roads Outside Region		
Denver Union Station		
Urban Center Location		

0 10 20 Miles

DRCOG  
 DENVER REGIONAL CENTER OF GOVERNMENT

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## Rapid Transit Background

The Metro Vision rapid transit system was developed with significant participation from RTD, CDOT, local governments, and the public. Some components are already in operation, some are under construction, some have been thoroughly studied and are part of a proposed funding plan, and others are more conceptual in nature.

Existing rapid transit lines have proven to be successful in the Denver region to a wide variety of users including daily work commuters, students, lower-income shoppers, medical facility clients, and elderly persons. The reliability and predictability of the train schedule is one of the primary features that distinguishes it from bus service. Bus service in mixed-traffic is often disrupted by traffic congestion, crash-related delays, and poor weather conditions. These types of events have less impact on separated bus/HOV lanes and rarely impact rail transit.

The relationship of the rapid transit system with other transportation, growth, and development elements is displayed in the exhibits in Appendix 1.

## 2035 Rapid Transit System

The 2035 rapid transit system includes four primary types of service/vehicle technologies, each with typical (not required) characteristics:

- *Light rail transit* – electric-powered, lighter-weight vehicles, high frequency service (5 to 15 minute peak headways), and numerous stations (as low as one-mile spacing);
- *Commuter rail* – diesel or electric powered heavy vehicles, moderate frequency service (20 to 30 minute peak headways), and limited stations (average four-mile spacing);
- *Bus/HOV/HOT lanes* – exclusive travelway within or parallel to a highway right-of-way, frequent bus service, may serve park-n-Ride lots or specialized bus rapid transit stations. Toll-paying single-occupant vehicles may be an acceptable incidental use of HOV lanes, given proper analysis to ensure that travel speeds for buses and HOVs will not be impacted. Figure 16 depicts high-occupancy/toll (HOT) “managed lane” facilities, I-25 north of downtown Denver, and US-36 north from I-25 to Boulder;
- *Intercity rail* – diesel-powered heavy vehicles, low frequency service (30 to 60 minute peak headways), longer distance trips, and very few stations (located in selected communities).

The 2035 Metro Vision rapid transit system separates the corridors into three system tiers:

- **Tier 1: Base Fiscally Constrained Rapid Transit System.** This 192-mile system includes light rail, commuter rail, freeway BRT facilities, HOT lanes, and bus/HOV corridors that are currently operating or that were approved in the Regional Transportation District FasTracks Plan adopted by the region's voters in November 2004. This system will serve the most densely developed parts of the region, including at least 43 urban center locations. Denver Union Station will become a major multimodal passenger hub for the system. Rapid transit stations will stimulate adjacent transit-oriented development. Tier 1 will also greatly improve transit service for persons who do not have access to a private automobile.
- **Tier 2: Potential Regional and State Intercity Corridors** (red-dashed and green lines on Figure 16). Several other potential rapid transit corridors traverse major developed areas within the region and/or provide service to and from other parts of the state. The type of technology that will be used is not known as formal ridership examinations and detailed design have not been completed to identify the appropriate service/vehicle technology. When adjacent highway improvements are considered in these corridors, they should be designed so as not to prohibit future rapid transit construction. The potential regional and state intercity corridors within the Denver region total 263 miles.
- **Tier 3: Conceptual Preservation Corridors** (blue lines on Figure 16). These future rapid transit corridors are located along, or leading to, major circumferential roadways. They cover about 110 miles. Rights-of-way will be preserved to the extent possible in these corridors for potential rapid transit implementation in the future.

### **Bus Rapid Transit (BRT) Service**

BRT is a system of improvements that provides faster operating speeds, greater service reliability, and increased convenience than traditional fixed-route service. On freeways in the Denver region, BRT typically means buses traveling in exclusive or partly-exclusive lanes, with on-line stations or segregated access ramps, coupled with additional improvements that allow buses to load and travel quickly and efficiently. The US-36 EIS Record of Decision identifies BRT stations and service along US-36 from Boulder tying into the managed lanes on I-25 north of downtown Denver. On arterials, BRT infers bus operational improvements at intersections (such as queue jump lanes or bus signal priority) and key bus stops, enhanced station-like treatments for passengers at those key locations, and, in some cases, a travel lane reserved for

the near-exclusive use by buses. Figure 16 does not specifically depict arterial BRT, but it is possible that ridership studies and detailed design considerations for some of the tier 2 corridors may conclude that interim (or even ultimate) deployment of BRT is appropriate for them. Other arterial corridors will be provided with BRT treatments (for example, extension of the US-36 freeway BRT into Boulder along 28<sup>th</sup> Street and Broadway).

### **park-n-Ride Lots and Stations**

RTD's park-n-Ride lots provide an important place for thousands of patrons to access transit service. They are an integral part of the rapid transit and bus systems. Several existing lots fill up early in the morning each weekday, prohibiting more commuters from using transit. Many new lots will be constructed by 2035 and several existing lots will be expanded to meet the needs of transit riders.

Park-n-Ride lot locations have been identified to meet the needs of the fiscally constrained transit system (Appendix 2), but many more park-n-Ride lots will required to accompany tier 2 and 3 transit corridors.

Some rapid transit stations will not include parking. Primarily neighborhood stations, these serve walkers, bicyclists, feeder buses, and drop-off/pick-up transportation.

## **D. Fixed-Route Bus and Other Transit Services**

RTD and other public and private operators will provide important services to the growing population of the region. A variety of services will address the mobility needs of persons who cannot drive and those who desire an alternative to the private motor vehicle. Bus routes will provide extensive service to customers along principal and major regional arterials. Denser urban areas will be served by high-frequency bus service with more moderate service provided in the suburban development pattern areas.

Applicable Metro Vision transportation policies are listed below along with applicable action strategies:

### **Bus Transit Services: Metro Vision Transportation Policies and Action Strategies**

**Policy #2: Transit.** Provide increased transit service and facilities that can accommodate an increasing share of daily travel, encourage transit-oriented development, and provide mobility options.

- Develop an expanded metropolitan rapid transit system comprised of rail and bus/BRT/HOV/HOT facilities that provide regional connectivity for passengers traveling throughout the region and to and from other regions.
- Provide a fixed-route bus service system that includes high-frequency bus corridors, regional bus service, feeder routes to rapid transit lines, and other local route service.
- Provide demand-responsive bus or van service in appropriate circumstances, such as for elderly and disabled persons, travelers in less densely developed or smaller market areas, or feeder service to rapid transit lines.
- Encourage and support pricing structures that keep transit service affordable.
- Encourage the use of private transit services to major attractions not served by public transit, such as gaming communities or ski resorts.

**Policy #6. Denver Central Business District.** Improve and maintain efficient transportation access by all modes to downtown Denver.

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing.
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.
- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities.
- Consider opportunities for the development of an intercity commuter rail or bus system along the Front Range, and also incorporate, within the region, elements of a statewide intercity rail system.

**Policy #11. Transportation-efficient Housing and Business Developments.** Design new developments within communities to allow the efficient movement of pedestrians, bicyclists, buses, and motor vehicles within, to, and through the area.

**Policy #12. Land Use Integration.** Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

- Promote multimodal interaction between streets and adjacent development in the design of new developments, and through the retrofitting of existing streets.
- Encourage bus, rapid transit, bicycle, pedestrian and other transportation facilities and amenities that enhance transit-oriented developments (TOD).

**Policy #13. Transportation for the Disadvantaged.** Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

- Ensure that minority, low-income, elderly, and disabled households receive a proportionate share of accessibility benefits, travel mode choices, and services from future transportation system improvements and are not disproportionately affected by negative impacts associated with those improvements.
- Promote coordination between disadvantaged transit service providers to improve the quality of service and increase efficiency.

**Policy # 14. Environmental Quality.** Develop and maintain a sustainable transportation system that protects and enhances air quality, energy efficiency and the overall environment.

- Provide a wide variety of transportation facilities, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities, that are more energy efficient and less polluting in aggregate than single-occupant vehicles.
- Prioritize transportation system improvements that minimize transportation-related fuel consumption and air pollutant and greenhouse gas emissions.

Two important overall Metro Vision goals are directly related to bus rapid transit:

- Reduce the percent of trips to work by SOV to 65 percent by 2035, and
- Reduce the regional per capita VMT by 10 percent by 2035.

Bus or van transit services will be provided throughout the region. Increased population will create a higher demand for mobility provided by transit. In particular, there will be a greater need for alternative demand-responsive service for the growing elderly and disabled populations.

The majority of transit service will be provided by RTD within its district boundary. Expansion of the boundary could occur through the approval of voters within the added areas. Additional service will be provided by numerous public and private providers located throughout the region. More information regarding specific bus transit services is presented in the corridor vision plan sheets in Appendix 1.

### **2035 Fixed-Route Bus Network and Services**

RTD will expand its fixed-route public bus service extensively within its boundary. Fixed-route service includes scheduled regional, express, and local routes. Overall the bus network will expand considerably from 2010 levels to match the anticipated urban growth.

Bus service plays a supporting role to Tier 1, 2, and 3 rapid transit improvements. In some cases, the rapid transit service will replace existing regional and express bus routes that serve similar destinations. Local bus routes will be adjusted to provide feeder service to new rapid transit routes.

### **park-n-Ride Lots and Bus Transfer Points**

RTD's park-n-Ride lots are integral to the bus system as well as the rapid transit system. Many new lots will be constructed by 2035 and several existing lots expanded.

As the regional transit network becomes larger and more complex, the need to provide transit information and create timed transfers will also increase. Bus stops will be enhanced to become key timed-transfer points in the system. They will enable convenient bus-to-bus, bus-to-rail, and rail-to-bus transfers. Transit information kiosks will be provided at major park-n-Ride lots and transfer points to provide riders with information regarding the arrival and departure of transit vehicles.

### **call-n-Ride Service**

RTD will provide call-n-Ride curb-to-curb transit service with smaller buses in suburban areas and freestanding communities that do not have sufficient demand to warrant fixed-route service. RTD call-n-Ride is also used to support the rapid transit system. For example, several new call-n-Rides came into service with the opening of the Southeast Corridor light rail line. Currently, there are 19 total call-n-Ride service areas offered by RTD throughout the metropolitan area.

### **Specialized Elderly and Disabled Transit Service**

RTD provides Americans with Disabilities Act (ADA) service through its access-a-Ride program. All fixed-route buses are wheelchair lift-equipped, all LRT trains are wheelchair accessible, and future trains will also be ADA compliant. Additional service will be provided by private non-profit agencies and local government-sponsored providers. Senior centers and places of worship will also provide many trips.

In 2005, persons in the region with a mobility impairment numbered approximately 153,000 (Table 3). About 27 percent were age 65 and over. This definition for disabled or mobility impairment is based on the U.S. Census tabulation of “persons who have difficulty going outside the home alone to shop or visit a doctor’s office.”

<b>Table 3</b>			
<b>2005 Estimated Population by Age and Mobility Impairment</b>			
	<b>0-64 Years</b>	<b>65+ Years</b>	<b>Total</b>
<b>Population</b>	2,460,000	237,000	2,697,000
<b>Non-mobility Impaired</b>	2,349,000	195,000	2,544,000
<b>Mobility Impaired</b>	111,000	42,000	153,000

Source: 2000 Census and DRCOG 2005 Population Estimates

## **RTD ADA Services**

RTD provides most elderly and disabled trips. Its access-a-Ride service acts both to supplement regular lift-equipped bus service and as a separate bus system for the disabled. It currently provides about 786,000 trips per year. An additional 120,000 wheelchair boardings occur on RTD's fixed-route buses and trains. One hundred percent of RTD's bus fleet has operable wheelchair lifts.

As the primary designated ADA provider of public transit in the Denver region, RTD must provide transportation service complementary to the fixed-route, general public system. Rides must be provided to any person within the service area who is certified as meeting the following criteria:

- Disability prevents person from using wheelchair-accessible fixed-route system;
- Person with disability is able to use accessible general transit, but is not able to take desired route because it is not accessible; and
- Person is unable to get to or from the bus stop or train station because of his/her disability.

ADA service that is provided must have the following characteristics:

- Serve any origin and destination within  $\frac{3}{4}$  mile of a transit route or station;
- Operate during same hours and days as comparable fixed-route;
- Have no restrictions on trip purpose or the number of trips per passenger;
- Provide trips the day following when the request is made;
- Provide service within one hour of the time requested; and
- Charge a fare that does not exceed twice that of comparable fixed-route.

RTD also offers the SeniorRide service to provide trips to seniors and others to attend a variety of cultural events and activities.

## **Other Service Providers**

Several other organizations will provide specialized transit services. Volunteer groups also arrange trips. The actual service providers through 2035 are not known since they are subject to periodic change. Major providers currently operating (noting those eligible for Federal Transit Administration (FTA) funding) include:

## Current Major Specialized Transportation Service Providers

---

Adams Community Development \*

Adams County A-LIFT

Adams County – Brighton and Tri-Valley

American Cancer Society\*

American Red Cross

Arapahoe County Community Resources\*

Black Hawk Transportation Authority\*

CARE-ful Wheels Transportation

Castle Rock Senior Center, Inc. \*

City and County of Broomfield – Easy Ride\*

City of Englewood\*

City of Lakewood\*

City of Littleton – Omnibus \*

City of Littleton - Shopping Cart \*

City of Thornton Senior Services

Clear Creek County\*

Community Intersections\*

Community Reach Center

Denver Options

Developmental Disabilities Resource Center\*

Developmental Pathways, Inc.\*

Disabled American Veterans

Douglas County Human Services\*

Douglas County Neighbor Network

Mini Bus Program\*

First Transit

Inter-Faith Task Force

First Ride (First Transit, Inc.)\*

Gilpin County Department of Human Services\*

Jewish Family Service

Lakewood Rides \*

Metro Taxi Paratransit

Midtown Express Inc.

Mobile Access

Mobility and Transportation Services

North Metro Community Services

Parker Senior Center \*

RTD - access-a-Ride

Safe Way Medical Transportation

Seniors' Resource Center, Inc.\*

Seniors! Inc

Southeast Transportation Authority\*

Special Transit \*

Total Long-term Care

Town of Castle Rock\*

Tri-Valley Senior Citizens Association\*

Volunteers of America (VOA)-Gilpin/Clear  
Creek Project\*

Weld County

\* Providers eligible for FTA Section 5310 funding.

## **Provision of Service through a County Service Broker**

A county may serve as the service broker for specialized transportation services within its jurisdiction. While the county service broker has many responsibilities, its primary responsibility is to coordinate transportation services for the county's elderly, disabled, and low-income populations. The county may assign this function to a county department. The county broker either provides the services or contracts with a service provider.

Service may be provided with any number of vehicles originating from a variety of sources including public agencies, private for-profit, private non-profit, and public non-profit providers. The county service broker may buy trips from any number of providers that will most effectively meet the specialized transportation needs of those requesting trips. Specific examples may include but are not limited to: RTD's access-a-Ride, vans affiliated with a particular seniors' center or charitable organization, and privately operated taxis. Within its district boundaries, RTD is encouraged to provide trips to the designated brokers and to use brokered services provided by non-profit providers.

## **Transit Service Outside the Regional Transportation District**

Service to areas outside the RTD boundaries will be available through current or new public transit agencies or by specialized providers. The Town of Castle Rock and the Black Hawk Transportation Authority are existing public transit agencies and Special Transit and Seniors' Resource Center are the primary specialized providers of service in the outlying areas. The Weld County Mini Bus program provides transportation service to the elderly and handicapped residents of Weld County. FTA Section 5311 funds are currently used by these agencies to support such service, and each provider has identified numerous long-term needs. Clear Creek County has identified long-term needs that conceivably would need to be addressed by a new public transit provider or by greatly expanded contracts with a current provider. It is anticipated that some areas currently outside the Regional Transportation District will pursue inclusion into it.

## **Private and Intercity Bus Service**

Private bus and van service will be important for workers and visitors to the gaming establishments in Central City and Black Hawk as well as for skiers and visitors traveling between DIA and the mountain resort communities. The Front Range Express (FREX) intercity bus service, operated by Colorado Springs Transit, currently provides service to the Arapahoe Road park-n-Ride lot and

downtown Denver from the Pikes Peak region. FREX service to the DRCOG region has been identified for significant service reductions in 2011. The new FLEX system provides bus service between Longmont and Fort Collins. These services could be partially or completely supplanted by state intercity rail service when such service is implemented.

Private intercity carriers such as Greyhound and the Texas, New Mexico, and Oklahoma (TNM&O) bus company are anticipated to provide national intercity passenger service. Bus stations are located in Boulder, Denver, and Englewood in the metropolitan area. Other companies also provide service between Denver and Mexico.

## E. Pedestrian Facilities

Each weekday in 2035 there will be over 20 million trips made in the region. Nearly all of these trips will involve someone walking or wheelchairs from one point to another for at least part of the trip. Pedestrian travel includes many wide-ranging examples:

- Walking from home to the grocery store;
- Walking home from school;
- Strolling to the bus stop after a work day;
- Using a wheelchair from a bus stop to a coffee shop; or
- A parcel deliverer hurrying from a truck to an office building to deliver a package.

Pedestrians travel on sidewalks, along roadway shoulders, through parking lots, across lawns, or on multipurpose trails (e.g., bike paths) to go places. Walking is the most flexible mode of travel. However, pedestrian trips cover much shorter distances than other travel modes. It is envisioned that in 2035 sidewalks or multipurpose trails will be provided along all applicable roadways within the UGB/A. Convenient access to urban centers and transit stops by walking will be provided.

Applicable Metro Vision transportation policies and action strategies are as follows:

### **Pedestrian: Metro Vision Transportation Policies and Action Strategies**

**Policy # 5. Rights-of-way Preservation.** Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

**Policy #6. Denver Central Business District.** Improve and maintain efficient transportation access by all modes to downtown Denver.

**Policy #7. Safety.** Develop and maintain a safe transportation system for all users.

- Emphasize projects on existing and future facilities that will reduce the likelihood or severity of crashes involving motor vehicles, trains, bicycles, and pedestrians; and
- Support legislation aimed at cost-effectively improving the safety of drivers, passengers, pedestrians, and bicyclists.

**Policy #9. Bicycle and Pedestrian.** Provide robust bicycle and pedestrian accessibility throughout the region.

- Require adequate sidewalks or pedestrian accommodations be provided along all roadways and within and between private developments in the region's urbanized area and in densely developed rural communities.
- Prioritize transportation system improvements locally and regionally that support bicycle and pedestrian modes as viable alternative travel choices.

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.

Two important overall Metro Vision goals are directly related to pedestrian travel:

- Reduce the percent of trips to work by SOV to 65 percent by 2035, and
- Reduce the regional per capita VMT by 10 percent by 2035.

Ten additional specific pedestrian design and planning policies for facility planning and facility design are identified in the DRCOG *Pedestrian and Bicycle Element of the 2035 Metro Vision Regional Transportation Plan*.

### **Design and Planning Pedestrian Policies in *Pedestrian and Bicycle Element of the Regional Transportation Plan***

1. In all urban and suburban areas, continuous sidewalks should be provided on both sides of all streets and roadways (except freeways) and where possible, detached from the roadway (preferred). Connections through developments and to the entrances of businesses, stores, schools, parks and other activity centers need to be established and maintained.
2. In rural areas, where pedestrian volumes tend to be low, paved shoulders should be provided along arterials with adequate width (in accordance with local, state and national guidelines) to buffer the pedestrian from the traveled roadway.
3. Local governments are encouraged to conduct a comprehensive review of pedestrian facilities and initiate efforts to provide any needed missing segments. In making such an analysis, local governments should also evaluate the degree to which barriers and intrusions exist and take the necessary steps to eliminate them.
4. New or reconstructed sidewalks detached from the curb along major regional and principal arterials should be a minimum unobstructed width of six feet. Planting or hard landscape strips between the curb and sidewalk should be no less than three feet wide.

5. New or reconstructed sidewalks attached to the curb along major regional and principal arterials should be a minimum unobstructed width of eight feet.
6. Sidewalks and multi-use trails should be built to accommodate the needs of all pedestrians and shall adhere to all Americans with Disabilities Act (ADA) design and accessibility guidelines.
7. Specific attention should be given to pedestrian needs in the design of intersections and traffic signalization.
8. “Right-turn-on-red” should be prohibited where high pedestrian volumes exist.
9. Roadway lighting should be provided at pedestrian crossings and other locations where conflicts could arise between drivers and pedestrian.
10. Property owners adjacent to sidewalks should meet local ordinance requirements to maintain and repair their sidewalks and promptly remove snow from walkways throughout the year.

The Pedestrian and Bicycle Element also contains 21 overall, land development, and education and encouragement policies that are relevant to pedestrian transportation. While not detailed herein, those policies are also applicable.

### **Pedestrian Background**

The *Pedestrian and Bicycle Element of the 2035 Metro Vision Regional Transportation Plan* was developed in cooperation with local and state governments, recreation districts, and various user groups. It calls for the provision of pedestrian and bicycle facilities and services to encourage walking and bicycling for transportation. This plan element, updated in 2010, is incorporated by reference in the 2035 MVRTP. The emphasis is on destination-oriented tripmaking rather than purely recreational travel.

Comfort and safety are critical factors related to pedestrians. Convenient, safe and well-lighted sidewalks and trails can encourage people to walk instead of drive. In 2009, 26 pedestrians were killed along roadways in the Denver region. When compared to the 157 total traffic fatalities in the region for that year, this is a disproportionately high percentage (17 percent) considering the length or time of travel by walking.

Many factors contribute to collisions involving pedestrians:

- High-volume and high-speed roadways;
- Turning vehicles at intersections;
- Driver distractions;
- Inadequate maintenance of roadways and sidewalks;
- Poor lighting and striping on roadways;
- Roads designed primarily for motor vehicles; and
- Pedestrian factors such as alcohol consumption, inattentiveness, and unsafe behaviors.

## **Pedestrian System Elements**

The provision of pedestrian facilities will be specifically addressed in all new transportation design and planning studies. Arterial roadway projects selected by DRCOG for inclusion in the Transportation Improvement Program that are within the UGB/A must assure that sidewalks or adjacent multipurpose trails are provided. Local governments should adopt policies that consider the provision of pedestrian facilities in conjunction with all new development and redevelopment. Pedestrian elements that should be considered include:

- Sidewalks (width dependent on activity and adjacent buildings, must accommodate wheelchairs);
- Multipurpose trails (bike paths);
- Trail overpasses or underpasses of major roadways, railroads, or rivers;
- Cut-through paths at the end of cul-de-sacs;
- Intersection and mid-block crosswalks (striping, raised or lighted pavement, signing, signal buttons/actuation, audible messages, and adequate crossing-time);
- Curb ramps for wheelchairs;
- Tactile detectable warning surfaces for visually impaired persons;
- Warning signs for drivers; and
- Convenient access to bus stops and transit stations.

More information regarding specific pedestrian projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

## **Regional Sidewalk System**

Sidewalks are currently provided on at least one side of about 70 percent of the regional roadway system arterials within the UGB/A (see Figure 17). The total linear mileage of sidewalks on these arterials is about 1,100 miles (includes adjacent off-street paved paths). About 500 additional linear miles will be needed to complete the system. As projects on existing roads are implemented and adjacent development occurs, sidewalks will be constructed. The top priority will be to complete missing sidewalk links where there is clear evidence of pedestrian activity, such as a footpath through the grass. Sidewalks should also be built along all new roads that are constructed.

## F. Bicycling Facilities

Bicycles provide an efficient means of transportation for short- to medium-length trips. The U.S. Census Bureau reported that in 2000 about 9,000 people in the region used a bicycle as their primary means of travel to work throughout the year. This reported value had increased to about 13,000 by 2009. However, based on DRCOG surveys, it is estimated that more than 36,000 people typically bicycle to work on nice weather days. Many more use a bicycle periodically to go to work, school, stores, or other places. Bicyclists primarily use the street system as well as the 1,800 miles of bike lanes and off-street trails that crisscross the region.

Applicable Metro Vision transportation policies and action strategies are as follows:

### **Bicycle: Metro Vision Transportation Policies and Action Strategies**

**Policy # 5. Rights-of-way Preservation.** Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

**Policy #6. Denver Central Business District.** Improve and maintain efficient transportation access by all modes to downtown Denver.

**Policy #7. Safety.** Develop and maintain a safe transportation system for all users.

- Emphasize projects on existing and future facilities that will reduce the likelihood or severity of crashes involving motor vehicles, trains, bicycles, and pedestrians; and
- Support legislation aimed at cost-effectively improving the safety of drivers, passengers, pedestrians, and bicyclists.

**Policy #9. Bicycle and Pedestrian.** Provide robust bicycle and pedestrian accessibility throughout the region.

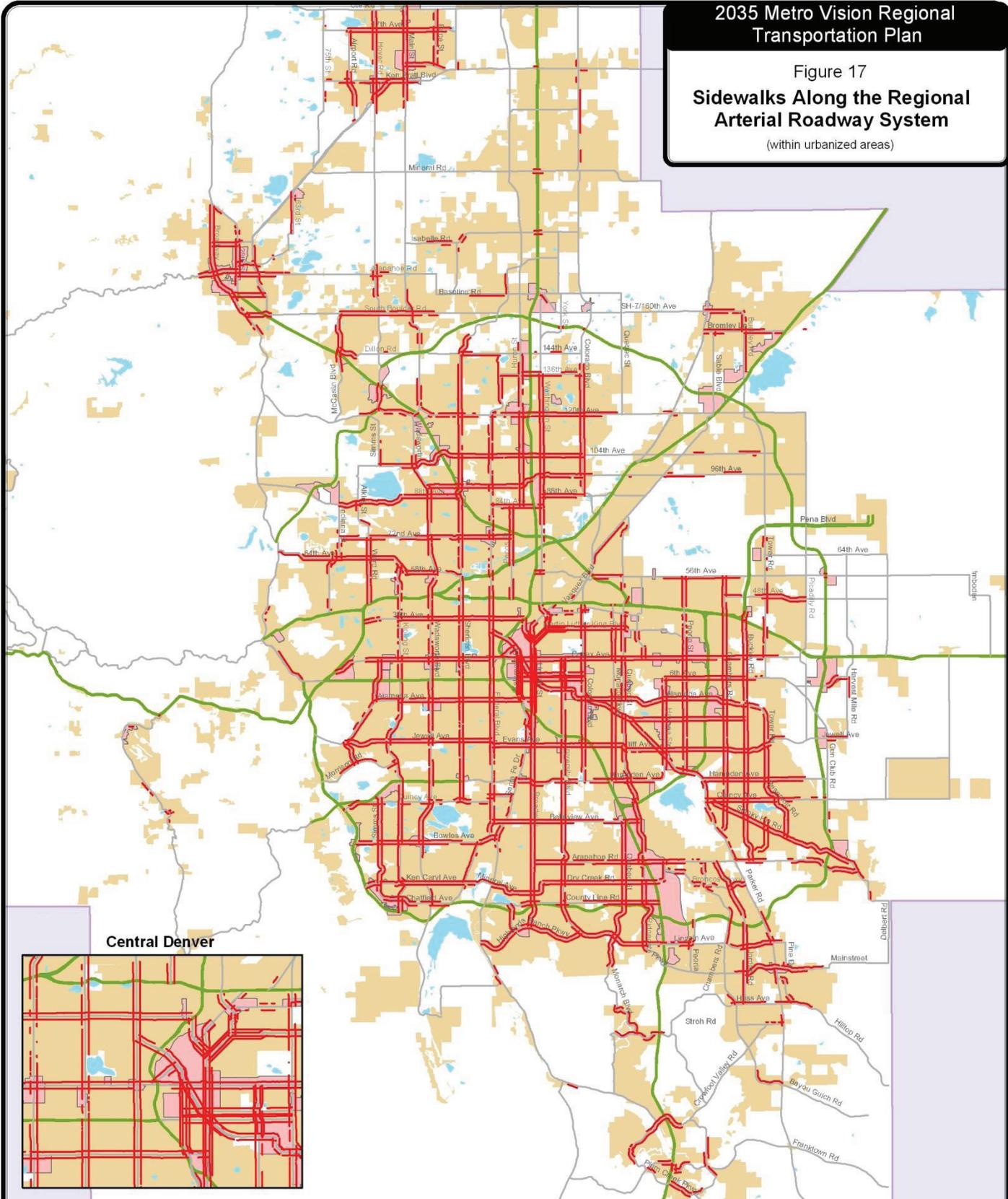
- Develop regional off-street and on-street bicycle corridor facilities and encourage the provision of local facilities throughout the region.
- Prioritize transportation system improvements locally and regionally that support bicycle and pedestrian modes as viable alternative travel choices.
- Encourage bicycle sharing programs.

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Improve transportation linkages to major destinations and attractions outside the region;
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.

2035 Metro Vision Regional Transportation Plan

Figure 17  
**Sidewalks Along the Regional Arterial Roadway System**  
 (within urbanized areas)



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 Source: DRCOG  
 Projection: Colorado State Plane, NAD 83  
 P.J. 9/10

- Existing Sidewalks
- Regional Arterial Roadway System
- Freeways (sidewalks not included)
- 2035 Urban Growth Boundary/Area
- Urban Centers
- Lakes and Reservoirs

0 2.5 5  
 Miles



Two important overall Metro Vision goals are directly related to bicycling:

- Reduce the percent of trips to work by SOV to 65 percent by 2035, and
- Reduce the regional per capita VMT by 10 percent by 2035.

Ten additional specific design and planning bicycling policies are identified in the DRCOG *Pedestrian and Bicycle Element of the 2035 Metro Vision Regional Transportation Plan*:

### **Design and Planning Bicycle Policies in *Pedestrian and Bicycle Element of the Regional Transportation Plan***

1. The existing and planned street system should accommodate bicycles and motor vehicles to the maximum extent possible for safe bicycle travel.
2. Local governments are encouraged to identify specific bicycle transportation markets (i.e., home-to-school, home-to-shop, home-to-work), and provide bicycle facilities to serve these markets.
3. Where street improvement and drainage projects coincide with desired bikeways, provisions for bicycle and pedestrian travel should be explicitly addressed before the project proceeds and upheld throughout project development, construction, and operation.
4. In rural areas, paved shoulders of at least four feet in width should be provided along major regional and principal arterials, county highways, and state highways to accommodate bicycle and pedestrian travel.
5. In urban and suburban areas, as roadways and bridges on the regional roadway system are constructed, reconstructed, resurfaced, or re-stripped, curb lanes should be widened to provide space for bicyclists.
6. Bicycle lanes designed to national standards are encouraged on collector and arterial roadways and along streets in areas where the construction of such a facility could improve the safety and/or connectivity of the regional bicycle system.
7. The use of “sharrow” pavement markings is encouraged where bicycles and vehicles share the traveled lane.
8. Bicycle parking facilities should be provided at major employment, retail, entertainment, commercial, and/or other activity centers in the region. Local governments should establish an off-street bicycle parking policy, which considers security, placement, quality of facilities, and provision of signs directing bicyclists to the parking facilities.
9. At actuated traffic signal locations, provision should be made to allow bicycles to be detected or to easily allow a bicyclist to activate a green signal.
10. Multi-use facilities should have (a) connections to the local street system and with residential, employment, commercial, and school sites; (b) explicit signage regarding the proper use of the facilities; (c) suggested 10-foot width to accommodate the various uses; and (d) adequate lighting in underpasses and other dark areas.

The Pedestrian and Bicycle Element also contains 21 overall, land development, and education and encouragement policies that are relevant to bicycle transportation. While not detailed herein, those policies are also applicable.

## **Bicycling Background**

The Denver region has one of the highest rates of bicycle use in the country. The climate, relatively concentrated urban development, extensive off-street trail system, and numerous mixed-use developments contribute to the popularity of bicycling. According to the 1995 Nationwide Personal Transportation Study, about 50 percent of all trips are three miles or less, and are potential bicycle trips. Obviously health conditions, weather, time of day and other factors prevent all these trips from being made on a bicycle. However, air quality and congestion can be improved and less fuel is burned every time a motor vehicle is left at home. RTD's bike-n-Ride program helps to extend the length of trips for hundreds of bicycles a day (all buses are equipped to carry bicycles). People can ride to a transit stop and put their bicycle on a bus bike rack or carry it on a light rail train (off-peak times and direction).

Comfort and safety are critical factors related to bicycling. About 530 bicyclists are injured in reported traffic crashes each year in the Denver region. Convenient bicycling facilities such as low-speed streets, bicycle lanes, paved shoulders, and multipurpose trails can encourage people to bicycle and also improve safety. Racks and lockers for parking bicycles at trip destinations must also be provided.

The relationship of the regional bicycle system to other transportation, growth, and development elements is displayed in the exhibits in Appendix 1. More information regarding specific bicycle projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

## **Bicycle System Elements**

Several hundred miles of bicycle facilities exist or are planned in the Denver region. The majority of these will be the responsibility of local governments and parks and recreation districts. Others will be the responsibility of CDOT. Types of facilities and treatments from DRCOG's *Guidelines for Successful Pedestrian and Bicycle Facilities in the Denver Region* include:

- Signing designated bicycle routes along bicycle-friendly streets (e.g., lower speeds and traffic volumes, wide curb lane, or shoulder);
- Constructing or striping wider curb lanes (e.g., 14 to 15 feet);
- Constructing paved shoulders (most important on rural highways);
- Providing marked on-street bicycle lanes and sharrow lane markings;
- Constructing off-street multi-use or shared use facilities;
- Constructing trail overpasses or underpasses of major roadways, railroads, or rivers;

- Providing bicycle parking at transit stations, park-n-Ride lots, and other activity centers (see DRCOG's documents, *A Guide to Bicycle Parking and Nonmotorized Access to Transit*); and
- Providing marked bicycle-sensitive signal detection on intersection approaches.

All types of facilities must be well maintained and constructed to established guidelines. Important maintenance and construction elements include:

- Routine pavement maintenance;
- Debris, snow and standing water removal;
- Vegetation removal (e.g., encroaching weeds and overhanging branches);
- Appropriate warning and regulatory signs (e.g., stop signs) and pavement markings on off-street trails and roadway approaches; and
- Guidance signs, pavement markings, and traffic control devices that direct off-street bicyclists through intersections with roadways or other trails.

### **Regional Bicycle Corridor System**

Bicycling is legally allowed on most roadways within the region, with the exception of urban freeways. Thus, in essence, nearly the entire system of roads and off-street trails constitutes the available regional bicycle system.

Regional and community bicycle corridors have been identified as part of a system to ensure connections among various parts of the region. They will also receive more emphasis when projects are considered for funding in the TIP. Figure 18 shows those corridors. A comparable number of on- and off-street corridors are identified. The precise location of many corridor facilities is not known at this time. New facilities that are designated to represent corridors depicted in Figure 18 must be within 1,000 feet of the mapped route.

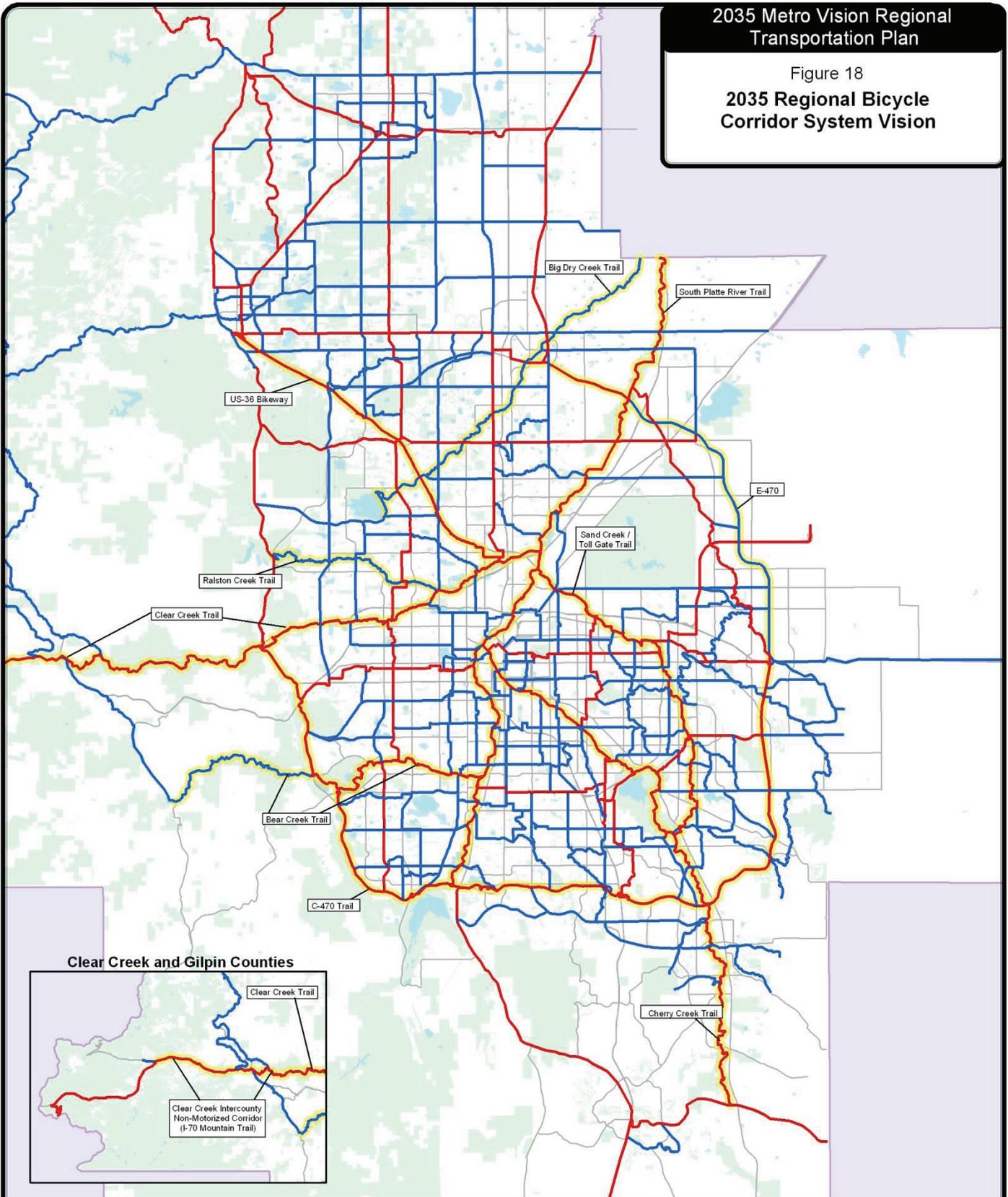
There are several key predominantly off-street trails that, when completed, will provide a backbone for an integrated regional bicycle system. Other shorter off-street trails will provide important connections. The key trails, as commonly referenced, include:

- Bear Creek Trail (Evergreen to Englewood)
- Big Dry Creek Trail (Standley Lake to North Thornton)
- C-470 Trail (Golden to I-25)
- Cherry Creek Trail (downtown Denver to Franktown)

- Clear Creek Trail (Jefferson County Line to South Platte River Trail)
- E-470 Trail (Lone Tree to Thornton)
- InterCounty Non-motorized Corridor I-70 Mountain Trail (Loveland Ski Area to Jefferson County Line)
- Ralston Creek Trail (SH-93 to Clear Creek Trail)
- Sand Creek/Toll Gate Creek Trail (Commerce City to south Aurora)
- South Platte River Trail (Chatfield Reservoir to Brighton)
- US-36 Bikeway (Boulder to Clear Creek Trail).

An important multi-region facility is the Colorado Front Range Trail (CFRT). When completed, the CFRT will be an 876-mile long multi-use trail that extends from Wyoming to New Mexico. Colorado State Parks is the lead agency responsible for planning and implementing the trail's development. The success of the trail is heavily dependent on the continued cooperation of local and county governments. In the Denver metropolitan area, the Colorado Front Range Trail would utilize several existing trails such as the Clear Creek Trail near Golden, the C-470 Trail near Lakewood, and the Chatfield Trail in Chatfield State Park.

Figure 18  
2035 Regional Bicycle Corridor System Vision



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Source: DRCOG  
Projection: Colorado State Plane, NAD 83  
PJ19110

- Regional Roadway System
- Roads Outside Region
- Lakes and Reservoirs
- Open Space and Parks
- Regional Corridors
- Community Corridors
- Key Multi-use Trails

Corridors Note: The specific facility representing a corridor may be directly on the route depicted or may be parallel within 1/4 mile. No more than one facility may represent the defined corridor.



## G. Multimodal Passenger Facilities

Several major facilities will serve as hubs for the movement of passengers between travel modes. These transfer points will provide connections to locations throughout the region, the state, the nation, and even the world. They will be integrated with the area's intraregional corridors.

Applicable Metro Vision transportation policies and action strategies are as follows:

### Multimodal Passenger Facilities: Metro Vision Transportation Policies and Action Strategies

**Policy #10. Interconnections.** Provide efficient interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Improve transportation linkages to major destinations and attractions outside the region;
- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing.
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.
- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities.
- Consider opportunities for the development of an intercity commuter rail or bus system along the Front Range, and also incorporate, within the region, elements of a statewide intercity rail system.
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.
- Maintain the capacity of DIA and support the provision of capacity enhancements in response to air transportation demands, consistent with original DIA development plans.
- Support actions to maintain and incrementally improve regional general aviation airport capacity.

### Denver International Airport (DIA)

DIA will be the most important transfer point in the state for air passenger traffic, providing connections to national and international destinations. In 2006 nearly 23.7 million passenger boardings took place at DIA. This is expected to increase to about 54 million in 2035. Slightly more than half (55 percent) of the boardings were passenger trips originating at DIA; the remainder was people making connections. On an average day, more than 72,000 passengers travel to or from DIA to begin or end an airline trip.

DIA currently employs more than 27,000 people; employment is expected to double by 2035. Passengers and workers travel to DIA by car, hotel shuttles, rental car shuttles, taxis, buses,

and many other modes. Moving people efficiently to and from DIA is of critical importance. Construction of the East Corridor transit connection to DIA is underway. A conceptual transit preservation corridor (Tier 3) is shown along E-470. Widening of Peña Boulevard and E-470 are also envisioned.

To meet the future demand for air travel, more improvements are envisioned for DIA and the surrounding area. These are detailed in Chapter 4, Section N. Aviation.

### **Denver Union Station (DUS)**

DUS will become a major intermodal passenger terminal serving as the hub for the Denver region as well as for intercity and national rail and bus service. Commuter rail, light rail, intercity rail, Amtrak, special rail services, RTD buses, intercity buses, cars, taxis, trucks, bicyclists, and pedestrians will all converge at Denver Union Station. Each day, thousands of passengers will make connections between rail lines and bus routes. Others destined for downtown will complete their trip by transferring to the downtown shuttles, walking, or bicycling.

### **Other Facilities**

There will be many park-n-Ride lots and train stations for people to access RTD and other trains and buses via car, walking, or bicycling. Many will be oriented within prominent mixed-use urban centers. Examples of major stations serving as key transfer points are:

- Civic Center Station
- Market Street Station (currently, will be replaced by Denver Union Station)
- Boulder Transit Center (downtown)
- Boulder Village Transit Center (30th Street/Pearl Parkway)
- I -25/Broadway (Southwest corridor, Southeast corridor, Central corridor)
- Peoria Street/Smith Road (East Corridor at I-225)
- 38th Avenue/Blake Street (East corridor, Central corridor extension)

Carpool lots such as the one recently expanded at I-70 and Hogback Road, and four CDOT lots on I-25 in Weld County, will allow people to park a vehicle and carpool to and from work, activities, or recreation destinations in the mountains or the north Front Range.